

U.S.S.N. 09/779,957

Filed: February 9, 2001

AMENDMENT AND RESPONSE TO OFFICE ACTION

In the Claims

1. (currently amended) A DNA construct for expression of multiple gene products in a cell comprising:

- (a) a single promoter at the 5' end of the construct,
- (b) one or more modified intein splicing units comprising multiple genes, or exteins, encoding one or more proteins, and
- (e) one or more intein sequences, fused to the carboxy-terminus portion of each gene except the last gene to be expressed, and
- (~~d~~) (c) a 3' termination sequence comprising a polyadenylation signal following the last coding sequence,

wherein at least one of the intein sequences can catalyze excision of the exteins, and wherein the excised exteins are not ligated.

Claim 2-5. (canceled)

6. (original) The construct of claim 1 wherein the promoter is selected from the group consisting of inducible promoters, constitutive promoters and tissue specific promoters.

7. (original) The construct of claim 1 wherein the genes encoding one or more proteins are preceded or followed by a sequence encoding a peptide that targets the gene expression product to a particular compartment within the cell in which the construct is expressed.

8. (original) The construct of claim 1 wherein the proteins are different enzymes.

9. (original) The construct of claim 1 wherein the proteins are the same proteins.

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10. (original) The construct of claim 1 wherein the inteins prevent the ligation reactions normally associated with protein splicing.

11. (previously presented) The DNA construct of claim 10 wherein the DNA construct encodes a glycine or alanine linking the intein and extein amino acid sequences.

12. (previously presented) The construct of claim 29 wherein the proteins are selected from the group consisting of acyl CoA dehydrogenases, acyl CoA oxidases, catalases, alpha subunits of beta-oxidation, beta subunits of beta-oxidation, PHA synthases with medium chain length substrate specificity, beta-ketothiolases, NADH or NADPH dependent reductases, PHA synthases with short chain length specificity, and PHA synthases that incorporate both short and medium chain length substrates.

13. (previously presented) The construct of claim 29 wherein the proteins are selected from the group consisting of enzymes encoded by the phaG locus, medium chain length synthases, beta-ketothiolases, NADH or NADPH dependent reductases, and PHA synthases that incorporate both short and medium chain length substrates.

14. (previously presented) The construct of claim 29 wherein the proteins are selected from the group consisting of herbicide resistance, insect resistance, and marker proteins.

15. (currently amended) A method for expressing multiple genes in cells comprising transforming the cells with a DNA construct comprising:

- a) a single promoter at the 5' end of the construct,

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- b) one or more modified intein splicing units comprising multiple genes, or
exteins, encoding one or more proteins, and
- e) one or more intein sequences, fused to the carboxy-terminus portion of
each gene except the last gene to be expressed, and
- ~~(d)~~(c) a 3' termination sequence following the last coding sequence comprising a
polyadenylation signal,

wherein at least one of the intein sequences can catalyze excision of the exteins,
and wherein the excised exteins are not ligated.

Claims 16-17. (canceled)

18. (original) The method of claim 15 wherein the cell is a plant cell and the promoter is
a promoter operable in a plant cell.

Claim 19. (cancelled)

20. (original) The method of claim 15 wherein the promoter is selected from the group
consisting of inducible promoters, constitutive promoters and tissue specific promoters.

21. (original) The method of claim 15 wherein the genes encoding one or more proteins
are preceded or followed by a sequence encoding a peptide that targets the gene expression
product to a particular compartment within the cell in which the construct is expressed.

22. (original) The method of claim 15 wherein the proteins are different enzymes.

23. (original) The method of claim 15 wherein the proteins are the same proteins.

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24. (original) The method of claim 15 wherein the inteins prevent the ligation reactions normally associated with protein splicing.

25. (previously presented) The method of claim 24 wherein the DNA construct encodes a glycine or alanine linking the intein and extein amino acid sequences.

26. (previously presented) The method of claim 18 for making polyhydroxyalkanoates in plants wherein the proteins are selected from the group consisting of acyl CoA dehydrogenases, acyl CoA oxidases, catalases, alpha subunits of beta-oxidation, beta subunits of beta-oxidation, PHA synthases with medium chain length substrate specificity, beta-ketothiolases, NADH or NADPH dependent reductases, PHA synthases with short chain length specificity, and PHA synthases that incorporate both short and medium chain length substrates.

27. (original) The method of claim 18 for making polyhydroxyalkanoates in plants wherein the proteins are selected from the group consisting of enzymes encoded by the phaG locus, medium chain length synthases, beta-ketothiolases, NADH or NADPH dependent reductases, and PHA synthases that incorporate both short and medium chain length substrates.

28. (previously presented) The method of claim 18 wherein the proteins are selected from the group consisting of herbicide resistance, insect resistance, and marker proteins.

29. (previously presented) The construct of claim 1 wherein the promoter is a promoter operable in a plant cell.